

Post-Closure Plan

Post-closure care and use of the property at the Slag Pit Sump will be performed in compliance with 40 C.F.R. §§265.117 through 265.120 as described briefly in the following sections. During the post-closure care period, ~~AstarisFMC~~ Idaho, LLC (~~AstarisFMC~~) will perform the post-closure monitoring activities in accordance the applicable performance standards specified in 40 C.F.R. §§265.117, 265.228 and 265.310, which include the following:

- **§§265.228(b)(1); 265.310(b)(1):** Requires that the integrity and effectiveness of the final cover be maintained, including making repairs to the cover as necessary to correct effects of settling, subsidence, erosion, or other events;
- **§§265.228(b)(3); 265.310(b)(3):** Requires that the groundwater monitoring system be maintained and monitored to comply with 40 C.F.R. Subpart F, as applicable;
- **§§265.228(b)(4); 265.310(b)(4):** Requires the prevention of run-on and run-off from eroding or otherwise damaging the final cover; and
- **§§265.310(b)(5):** Requires that benchmarks be protected and maintained per 40 C.F.R. §265.309.

Activities to be performed during the Slag Pit Sump post-closure care period shall be conducted to ensure that the Owner/Operator complies with the above-specified standards as well as the September 2012 Interim Record of Decision Amendment for the FMC Plant OU of the Eastern Michaud Superfund Site (IRODA), which requires that the CERCLA remedy integrate the existing RCRA caps with the development of new caps. This August 2014 amendment of the Post-Closure plan embodies the integration of the RCRA Post-Closure Plan for the Slag Pit Sump and the CERCLA remedial action for the area that encompasses this unit. ~~In addition, d~~During the period of time that the ~~CERCLA~~ evapotransporative (ET) cap interim cover is being constructed in Remedial Area B (RA-B) as specified in the IRODA, an area that encompasses the Slag Pit Sump, FMC ~~in place and prior to the placement of the final cap,~~ AstarisFMC will continue groundwater monitoring activities; perform inspections of the interim-closure area cover; and conduct maintenance activities for the closure area cover, and security systems. Post-closure monitoring activities will continue for a period of up to 30 years, unless shortened or lengthened by the Regional Administrator in accordance with 40 C.F.R. §265.117. AstarisFMC will petition EPA to reduce the post-closure monitoring period in accordance with 40 C.F.R. §265.118(g) in the event the Company concludes that a monitoring period of shorter duration is warranted. Following completion of construction of the ET cap and EPA approval of the CERCLA Operations, Monitoring and Maintenance (OM&M) Plan for the CERCLA soil remedy, the post-closure inspection and maintenance for the the Slag Pit Sump closure area cover will continue under this plan. The post-closure activities that will be performed at the Slag Pit Sump are summarized in Figure 10-1. Table 10-1 summarizes monitoring/inspection activities, reporting frequencies, triggers and response actions to be taken.

During the post-closure period, information about post-closure activities can be obtained by contacting:

- ~~Manager, Health, Safety, and Environmental (HS&E) Department, Pocatello Plant~~
Associate Director, EHS Remediation
AstarisFMC Idaho, LLC
3 miles west of Pocatello on Highway 30
P.O. Box 41141735 Market Street
Pocatello, ID 83205Philadelphia, PA
(208) 236-8200215/299-6700

<p>1. Groundwater Monitoring Wells</p> <p>FMC will perform periodic sampling and analysis of monitoring wells as specified in the groundwater monitoring program. These wells will include three downgradient wells (108, 122, and 123) and one upgradient well (121).</p>
<p>2. Inspections</p> <p>Astaris will conduct <u>FMC conducted</u> quarterly inspections of the closure area for the first five years-, then <u>after completion of closure in 2005, and since such time,</u> inspections will be <u>have been</u> conducted semiannually. <u>As the EPA comments on the March 2014 draft OM&M plan have indicated that inspections of the ET Cap on RA-B will be conducted quarterly for at least the first year, inspections of the slab pit sump closure area cover will revert to quarterly on the effective date of this amended post-closure plan- and continue quarterly for the next five years. After that five-year period, inspections will be conducted semi-annually.</u> Inspections will also occur within 48 hours of each 25-year, 24-hour storm event. Inspections will include the following: asphalt concrete <u>closure area</u> cover <u>(i.e., surface of the fill material and the ET cap constructed per the CERCLA remedial action over the slag pit sump)</u>, recent rodent or insect activity (such as fresh soil piles or holes), settlement monument¹, ditches, drainage systems, warning signs, security, and groundwater monitoring wells.</p>
<p>3. Maintenance Activities</p> <p>The closure area will be maintained, as needed, on the basis of the inspection records or as necessitated by unusual natural events, such as severe storms. The required repairs will be performed by Astaris <u>FMC</u> as soon as practical. The maintenance work may include the following:</p> <ul style="list-style-type: none"> (a) Maintenance of final <u>closure area</u> cover <ul style="list-style-type: none"> • Replacing lost soil and/or damaged asphalt concrete <u>cover</u> • Maintaining drainage channels • Controlling cover damage, including cracks, excessive settlement, ponding water, low spots, erosion channels, and rodent intrusions • Contingency plans for damage caused by severe storms or natural events (b) Maintenance of monitoring systems <ul style="list-style-type: none"> • Monitoring well repair or replacement • Maintenance or repair of settlement monument¹ (final cap only) (c) Maintenance of security systems <ul style="list-style-type: none"> • Warning signs <p>¹ <u>The settlement monument on the Slag Pit Sump cover will be re-established on the ET cap over RA-B. During the period of construction of the ET cap, including grading, the settlement monument will not be available for inspection. When re-established, the frequency of monitoring will be reset as described in Section 4.0.</u></p>

FIGURE 10-1
POST-CLOSURE ACTIVITY CHECKLIST FOR SLAG PIT SUMP– ~~ASTARIS~~ FMC IDAHO, LLC,
POCATELLO, IDAHO

TABLE 10-1
SLAG PIT SUMP POST-CLOSURE ACTIVITY CHECKLIST

Post-closure Monitoring/Inspection Activity	Record/Report	Activity Frequency	Reporting Frequency *	Trigger(s)	Action(s)	Closure Plan Reference
<u>Groundwater monitoring</u>						
Quarterly monitoring	Quarterly data validation report	Quarterly	Quarterly	Error(s) in laboratory or field data ⁽¹⁾	<ul style="list-style-type: none">Repeat measurementCheck and/or repeat calibrationRepair or replace measuring deviceCollect and analyze new samples ⁽¹⁾	Sections 4 & 5; Attachment 10-1
Annual groundwater assessment	Statistical evaluation, and Annual Assessment Report	Annually	Annually	Required annually	Evaluate and perform statistical assessment of groundwater analytical results. Re-evaluate the rate and extent of migration, as necessary. ⁽¹⁾	Attachment 10-1
<u>Quarterly inspections</u>						
Cap and Closure area cover	Inspection log	Quarterly	Annually	Visual or electronic indication of degradation or damage	Repair or replace as soon as practical	Section 10
Monument	Inspection log	Quarterly	Annually			
Drainage systems	Inspection log	Quarterly	Annually			
Security/signs	Inspection log	Quarterly	Annually			
Monitoring wells	Inspection log	Quarterly	Annually			
<u>25-year, 24-hour storm event inspection</u>	Inspection log	w/in 48-hours	w/ Annual	Same as quarterly	Same as quarterly	Section 10.7
<u>Settlement monitoring</u>						
After final RA-B cap	Survey report	Annually	Annually	Exceeds acceptable rates	Engineering evaluation/repair	Section 10.4
Visible subsidence or local seismic event	Survey report	As soon as practical	Annually	Exceeds acceptable rates	Engineering evaluation/repair	Section 10.4
<u>RCRA regulations/plant operations</u>	Post-closure Plan	60 days	60 days	Operational or regulation changes	Revise the Post-closure Plan	Section 10
Reference: ⁽¹⁾ Interim Status Groundwater Monitoring Plan, August 1999						
Note: * Unless greater or lesser frequency is approved by EPA.						

A copy of this post-closure plan will be maintained at the [AstarisFMC](#) HS&E office and will be made available to EPA upon request. The plan will be amended as necessary to accommodate any events or changes in operations at the facility or changes in governing regulations that could impact the Slag Pit Sump post-closure activities. Such an amendment (if necessary) will be submitted to EPA Region 10 at least 60 days prior to any proposed change in operations or within 60 days after any unexpected event that affects the Slag Pit Sump post-closure plan. After completion of post-closure care, [AstarisFMC](#) will certify completion of the post-closure activities as specified in 40 C.F.R §265.120.

The closure is inside an operating plant of [AstarisFMC](#), which has adequate equipment and manpower to perform emergency repair work such as grading, replacement of asphaltic concrete, and drainage systems as needed.

10.1 POST-CLOSURE NOTICES

Within 60 days after certification of closure and no later than the submittal of the certification of closure shown in Section 9 of this closure plan, [AstarisFMC](#) will submit to the local zoning authority, or the authority with jurisdiction over the land use, and to the Regional Administrator a record of the type, location, and quantity of waste placed in the sump as described in 40 C.F.R §265.119(a).

Within the same time frame and in accordance with 40 C.F.R. §265.119(b), [AstarisFMC](#) will record a notation on the deed to the facility property that will in perpetuity notify any potential purchaser of the property that the land use is restricted under 40 C.F.R. Part 265, Subpart G regulations, and that a survey plat (as required under 40 C.F.R. §265.116) has been filed with the local authorities in accordance with 40 C.F.R. §265.119(b)(1)(iii). To protect the integrity of the cap and ongoing monitoring systems, land use restrictions will include prohibition of subsurface intrusion within 20 feet of the limits of the final cap (LFC). [AstarisFMC](#) will comply with all the post-closure notices required under 40 C.F.R. §265.119 briefly described above.

After completion of post-closure care, [AstarisFMC](#) will certify completion of the post-closure activities as specified in 40 C.F.R. §265.120.

The survey plat (referenced above) will identify the location of the as-built RCRA cap. It will be completed by a professional land surveyor and filed with the local land use authorities. The property within the limits of the survey plat will be restricted from any post-closure use which could jeopardize the integrity of the RCRA cap or interfere with ongoing monitoring and

maintenance activities. To protect the integrity of the cap, land use restrictions will include prohibition of subsurface intrusion within 20 feet of the limits of the final cap (LFC). Appropriate barrier systems will be provided to protect the surveyed benchmarks from damage.

10.2 SECURITY SYSTEM

The Slag Pit Sump is wholly enclosed within the boundaries of the active portion of an operating facility which itself has a combination of fencing, natural barriers and 24-hour surveillance to monitor and control entry. Access to the closed unit is further controlled because of its location within the slag pit which helps prevent inadvertent access of unauthorized persons.

Signs will be posted in the vicinity of the Slag Pit Sump to be seen from any approach to the closed unit. A minimum of one sign ~~inside the slag pit~~, adjacent to the sump, and one sign, outside and above the slag pit. The signs will be in English only, and will read ‘Danger-Unauthorized Personnel Keep Out’. ~~Astari~~**FMC** will authorize specific personnel limited access to perform inspection, repair, maintenance, sample collection, and similar activities required for post-closure care.

10.3 INSPECTION

The closure area, including the final RCRA cap, will be inspected quarterly for the first five years after closure in 2005, and semiannually thereafter. As the EPA comments on the March 2014 draft OM&M plan have indicated that inspection of the ET Cap on RA-B will be conducted quarterly for at least the first year, inspections of the slag pit sump closure area will revert to quarterly on the effective date of this amended post-closure plan and continue quarterly for five years. After that five-year period, inspections will be conducted semiannually. The cap will be inspected within 48 hours after each 25-year, 24-hour storm event. Any degradation, erosion, slopes, failures, settlement, cracks, or damage will be recorded with related recommendations for repair or maintenance in the facility’s operating record. All necessary repairs will be performed by ~~Astari~~**FMC**. Upon completion of repairs, a reinspection will be performed to document the date and acceptability of the repairs. A sample Inspection Record Form is provided in Figure 10-2. A final Facility Inspection Record Form for multiple regulated activities may be prepared and substituted for this form. This Facility Inspection Record Form will include all of the unit-specific information. Table 10-2 provides additional details on the types of inspections, the frequency and the maintenance action.

Documentation of all repairs or maintenance activities will also be maintained in the facility’s operating record on site. All repairs to the final cover will be in accordance with the procedures

as specified in the final cover construction specifications, including all testing and inspections as required by the final cover CQA plan (Appendix F of this Closure Plan).

Item/Condition Checklist	Inspection Results				Reinspection ⁽²⁾		
	Date/ Time	Signature	Acceptable	Unacceptable ⁽¹⁾	Date/ Time	Signature	Acceptable
Monitoring Wells (groundwater, temperature, pressure) - Barrier poles intact - Well covers intact and locked							
Settlement Monitors - Clear and accessible (<i>after re-establishment</i>)							
Surveyed Benchmarks - Clear and accessible							
Cover Material Conditions - No damage to asphalt concrete - No excessive erosion - No evidence of rodent or insect intrusion - No excessive ruts or potholes							
Storm Water Management - Swales clear of excess sediment/debris							
Security Systems - No evidence of uncontrolled access - Signage intact							
Slopes - No sloughing or tension cracking - No excessive channels or washouts							
Others							

Notes:

⁽¹⁾ Explain the unacceptable conditions of each item; recommend any repairs (attach additional pages if necessary).

⁽²⁾ Reinspect after satisfactory completion of any necessary repairs and note the acceptance of the repairs.

FIGURE 10-2. INSPECTION RECORD FORM, ~~ASTARIS~~FMC IDAHO, LLC, POCA TELLO, IDAHO

TABLE 10-2
SLAG PIT SUMP MAINTENANCE ACTIVITIES

Inspection Item	Inspection Frequency	Maintenance Action	Cross Reference
Groundwater monitoring wells			
Field equipment	Quarterly	Repair or replace defective/damaged equipment	Attachment 10-1b
Laboratory equipment	Quarterly	Recalibrate; repair or replace defective equipment	Laboratory QAPP; Attachment 10-1b
Well covers	Quarterly	Replace damaged well covers	Section 10.3
Barrier poles	Quarterly	Repair or replace damaged barrier pole(s)	Section 10.3
Lock(s)	Quarterly	Replace missing or inoperable locks	Section 10.3
Cap and Closure area cover	Quarterly	Repair damage, replace asphalt concrete, closure area cover	Section 10.6
Monument	Quarterly	Repair or replace damaged monument	Section 10.3
Drainage systems	Quarterly	Clear channels and ditches of sediment and debris	Section 10.7
Signs	Quarterly	Replace signs	Section 10.3

10.4 **FINAL-CLOSURE AREA** COVER SETTLEMENT MONITORING

To monitor ~~final~~closure area cover settlement, the elevation and coordinates of the monument will be surveyed to determine the vertical and horizontal components of the final cover monument. Measurements will be taken on the monument annually. For accuracy, a surveying instrument will be used to take measurements with the following tolerances:

- Elevation readings 0.01 foot
- Horizontal displacement 0.1 foot

Elevation and displacement measurements will be plotted cumulatively versus time. The time scale will be in logarithm of time or square root of time. The settlement curve will be kept up to date with each reading.

The displacement measurements (vertical and horizontal movements) will be made annually during the remaining post-closure period or until the total cumulative movements for the last five years are less than the following limits:

- Vertical settlement 0.03 foot
- Horizontal movement 0.2 foot

Displacement measurements will be made (1) at least once every five years during the post-closure period after these limits are reached; (2) if marked, visible subsidence is noted during semiannual inspections or routine maintenance; and (3) after local seismic events.

Settlement monitoring will be based on control stations “94-1” and 94-4”, which are local stations in ~~Astoria~~FMC’ survey control system. The coordinates for these stations were derived from US Coast & Geodetic Survey (US C&GS) Control Station MCDOUGAL-2 and BM Y-96. The vertical datum is based on the 1968 adjustment of the National Geodetic Vertical Datum of 1929 (NGVD 29) by the US C&GS.

Any damaged monument detected during post-closure inspections either will be repaired or replaced in accordance with the construction drawings and specifications used during closure (Appendix F).

10.5 GROUNDWATER MONITORING

As indicated in Section 3, past activities at the Slag Pit Sump have impacted groundwater in the area. Therefore, groundwater monitoring will continue during the post-closure period. Groundwater from designated RCRA monitoring wells upgradient and downgradient of the Slag Pit Sump will be sampled and analyzed on a periodic basis, to provide data regarding groundwater quality beneath and in the vicinity of the Slag Pit Sump during the post-closure period. Groundwater monitoring with respect to the Slag Pit Sump will be conducted in accordance with the compliance monitoring program identified in Section E.7 of the RCRA Part B Permit Application. The Sampling and Analysis Plan for post-closure groundwater monitoring is contained in Attachment 10-1 of this section. The one upgradient and three downgradient groundwater monitoring wells will be sampled for the following parameters :

- Heavy metals – arsenic, cadmium, and selenium (quarterly)
- Water quality – ammonia, chloride, fluoride, potassium, nitrate, sulfate, orthophosphate, and total phosphorus (quarterly)
- Field parameters – pH, turbidity, temperature, water level, and specific conductance (quarterly)
- Elemental phosphorus (semi-annually)

Groundwater monitoring will continue until such a time as a demonstration can be made for reduced frequency or parameters. In this event, [AstarisFMC](#) will petition EPA to reduce the post-closure monitoring period in accordance with 40 C.F.R. §265.118(g). The monitoring program might also be changed as necessitated by the CERCLA activities at the site, or as required by either the [AstarisFMC](#) facility Part B or Post-Closure Part B Permits.

10.6 ~~CAP-CLOSURE AREA COVER~~ MAINTENANCE

The cover surface will be maintained regularly, as necessary, to maintain the [closure area](#) cover ~~and asphalt concrete~~. Maintenance of the [final closure area](#) cover components will be performed as needed. Eroded surface soils will be replaced. Surface slopes will be maintained to prevent any localized ponding. If regular inspections detect vector activity, such as fresh soil piles or holes, the damage will be repaired and traps set for rodent control. If excess settlement is observed and possible damage to the low permeability barrier is suspected, a registered Professional Engineer will be consulted to assess potential damage and recommend any necessary repairs. [AstarisFMC](#) will perform the repairs as part of the scheduled quarterly

maintenance program. Table 10-2 provides additional details on the types of inspections, the frequency, and the maintenance action.

All maintenance work performed in accordance with this section will be consistent with any maintenance work to be performed on the CERCLA RA-B ET cap pursuant to an EPA-approved CERCLA soil remedy OM&M plan.

10.7 STORM WATER MANAGEMENT

The Slag Pit Sump storm water management system will be inspected and repaired quarterly, and within 48 hours after each 25-year, 24-hour storm event. Sediment and trash accumulations in the channels will be removed to facilitate proper drainage. Eroded channels will be repaired.

All maintenance work performed in accordance with this section will be consistent with any maintenance work to be performed on the CERCLA RA-B ET cap pursuant to an EPA-approved CERCLA soil remedy OM&M plan.

10.8 RECORD KEEPING AND REPORTING

Closure and Post-closure Plans, including cost estimates, monitoring data, inspection records, and certifications are part of the facility operating record. The operating record is located in the facility's Health, Safety and Environmental (HS&E) Department files. Except for inspection records, which must be kept for 3 years, the information contained in the operating record will be maintained at the facility until closure and/or post-closure (in the case of groundwater monitoring information) have been completed.

AstarisFMC will report to EPA Region 10 as required by RCRA regulations and the FMC RCRA Consent Decree, entered October 16, 1998: groundwater monitoring data, emergency incidents, and other situations potentially threatening to human health or the environment.